

Application No.: 10/715,744
Reply Brief Of: March 8, 2010

MAT-8484US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No: 10/715,744
Appellant: Gota ASANO
Filed: November 18, 2003
Title: ALKALINE STORAGE BATTERY AND METHOD
TC/A.U.: 1795
Examiner: Tracy Mae Dove
Confirmation No.: 5520
Notice of Appeal Filed: October 19, 2007
Docket No.: MAT-8484US

SUPPLEMENTAL REPLY BRIEF UNDER 37 CFR § 41.41

Mail Stop Appeal Brief-Patents

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Supplemental Examiner's Answer mailed January 12, 2010, Appellant is submitting this Supplemental Reply Brief for the above-identified application.

1. Status of the Application

Following Appellant's submission of a Reply Brief responding to the Examiner's Answer, the Board remanded the application to the Examiner in order to permit the Examiner to further explain her obviousness position and to permit the Appellant to respond to any further explanation by the Examiner. This Supplemental Reply Brief is being submitted for the purpose of addressing the points made in the Supplemental Examiner's Answer mailed January 12, 2010.

2. Rejection of claims 1-8 as unpatentable over Yoshinaka in view of the APA

Appellant and the Examiner continue to be in disagreement as to whether the Appellant's claimed feature of "... a terminal of said upper metal current collector is disposed through said hole in the center of said sealing plate ..." renders Appellant's claim patentable. Appellant argues the above feature is not in the prior art. The Examiner agrees, but argues the claim is obvious despite the above feature not being in the prior art.

Appellant's exemplary embodiment includes "... a terminal of said upper metal current collector...disposed through said hole in the center of said sealing plate," as recited in claim 1. Appellant's exemplary embodiment comprises upper metal current collector 1 and sealing plate 2. During fabrication, the doughnut-like sealing plate 2 is provided with a hole. Cap-shaped positive terminal 13 is then inserted into the hole in the center of sealing plate 2, as indicated by the arrow in Fig. 2 (Page 9, lines 24-27). This fabrication produces the exemplary battery shown at Fig. 1.

Yoshinaka includes a sealing plate A1 and a filter 1 (Fig. 1). The Examiner argues that filter 1 is the same as Appellant's claimed upper metal current collector (Supplemental Examiner's Answer, page 13, third line from bottom of page). The sealing plate A1 of Yoshinaka, however, does not include a hole of any kind. In fact, the Examiner admits that Yoshinaka does not disclose that "... a terminal of said upper metal current collector is disposed through said hole in the center of said sealing plate," as recited in claim 1. (Supplemental Examiner's Answer, page 4, last two lines, emphasis added).

However, the Examiner nonetheless concludes that "the invention as a whole

would have been obvious to one having ordinary skill in the art at the time the invention was made because one of skill would have found the two-piece terminal and sealing plate as shown in Figure 1 of the present invention obvious in view of the single piece terminal and sealing plate as shown in Figures 1-5 of Yoshinaka." (Supplemental Examiner's Answer, page 5, lines 2-6). The Examiner further states that "[t]he battery cap assembly of the claimed invention and the battery cap assembly of Yoshinaka are obvious variants and one of skill would reasonably expect them to function the same." (Supplemental Examiner's Answer, page 5, lines 6-9).

In support of her conclusions, the Examiner explains that one of skill would have found the claimed arrangement obvious "because the two claimed parts, the terminal of the upper collector disposed through a hole in the center of a sealing gasket, are welded together to form the same unitary structure as that taught in Yoshinaka." She further comments that "[t]he battery cap assembly of the claimed invention and the battery cap assembly of Yoshinaka are obvious variants and one of skill would reasonably expect them to function the same because each is required to transfer electricity from the battery by connecting the electron generating electrodes to the battery casing terminals." The Examiner also notes that "Applicant has not shown any criticality to the two-piece terminal 13 and the sealing plate 2...over the single piece sealing plate A1 which includes the terminal 3." (Supplemental Examiner's Answer, page 18, lines 8-10).

However, Appellant respectfully submits that the battery cap assembly of the present invention does not function entirely the same as the battery cap assembly described in the Yoshinaka reference. That is, the two-piece sealing plate of Appellant's invention performs functions which are not performed by the one-piece

sealing plates described in the references relied on by the Examiner. In addition, Appellant's two-piece assembly has unobvious advantages over the prior art one-piece sealing plates.

Appellant discovered problems with the conventional one-piece sealing plate and terminal configuration of Yoshinaka and APA (see, for example, Appellant's substitute specification at page 7, lines 7 - 17). Both Yoshinaka and APA include conventional leads which occupy space and create more resistance. Yoshinaka includes lead 9 (Fig. 3). APA includes lead 11 (Fig. 4 of Appellant's specification). As described above, Appellant's exemplary embodiment uses a two-piece sealing plate to solve the above identified problems. That is, the doughnut-like sealing plate 2 of Appellant's exemplary embodiment is provided with a hole in its center. The cap-shaped positive terminal 13 is then inserted into the hole, eliminating the need for a conventional lead and producing the structure of the exemplary battery shown at Fig.1. By disposing the current collector 1 through the hole, upper current collector 1 and positive plate 3 become more closely joined. This causes significant reduction in resistance and eliminates space occupied by a conventional lead (Appellant's specification, page 5, line 29 to page 6, line 8). Further, Appellant's claimed features allow for a simpler method of assembling the cylindrical alkaline storage battery of the present invention, as described in Appellant's substitute specification at page 9, lines 12 - 26, with reference to Fig. 2.

A skilled person ordinarily would avoid taking a unitary structure known in the art and reconfiguring it so that a plurality of separate components are instead utilized, as such a change would usually add complexity and cost. Why, then, would such a person contemplate modifying the one-piece assembly of the Yoshinaka reference or

the APA so that it would be a more complicated multiple piece assembly, even if it was apparent that the individual pieces could still somehow be joined together so as to provide a component capable of transferring electricity? In this case, however, Appellant has discovered that departing from the prior art approach of providing a one-piece assembly can actually provide certain advantages and benefits which would not have been readily recognized, as explained in the preceding paragraph.

Of course, the two-piece assembly recited in the claims on appeal does not differ from the one-piece assembly described in the cited references merely by being comprised of two pieces rather than one. The claims are directed to a particular arrangement of the two-pieces and each of the two pieces needs to have a specific configuration. In claim 1, for example, the sealing plate component has to contain a hole. Moreover, that hole must be in the center of the sealing plate. The upper metal current collector must have a terminal and that terminal must be arranged so that it is disposed through the hole in the center of the sealing plate. The Examiner has failed to articulate why these particular claimed features would have been obvious to an ordinarily skilled person, i.e., why such a person would have found it obvious to start with the unitary structures shown in the references and alter them in the precise manner required to arrive at the different arrangement recited in Appellant's claims. That is, even if such a person would have recognized that the one-piece assembly of the Yoshinaka reference could in principle be separated into two pieces that are joined so as to still be capable of transferring electricity from the battery by connecting the electron generating electrodes to the battery, what would have led him or her to do so such that one piece is "a sealing plate made of metal with a hole formed at the center" and the second piece is "an upper metal current collector" with "a terminal of said

upper metal current collector...disposed through said hole in the center of said sealing plate," as recited in Appellant's claim 1? The Examiner's rejection provides no explanation of why it would have been apparent to an ordinarily skilled person to make these particular design choices and thus is insufficient under 35 U.S.C. 103 to support a conclusion of obviousness.

Therefore, Appellant respectfully submits that Appellant's claimed arrangement of "... a terminal of said upper metal current collector is disposed through said hole in the center of said sealing plate," would not have been obvious to one having ordinary skill in the art in view of the one-piece sealing plate and terminal configuration of Yoshinaka and the APA.

3. Rejection of claims 1-6 and 8 as unpatentable over Han in view of the APA

As described above, Appellant's exemplary embodiment includes "... a terminal of said upper metal current collector...disposed through said hole in the center of said sealing plate," as recited in claim 1.

The cap assembly of Han includes a sealing plate (top layer of cap assembly 18) and a current collector (bottom layer of cap assembly 18). The sealing plate has a cap-shaped terminal and the current collector has a hole for venting gas (Fig. 2). The sealing plate of Han, however, does not include a hole of any kind. In fact, the Examiner admits that Han does not disclose "... a terminal of said upper metal current collector is disposed through said hole in the center of said sealing plate," as recited in claim 1. (Supplemental Examiner's Answer, page 6, lines 5-6, emphasis added).

The Examiner's position is that cap assembly 18 of Han is equivalent to

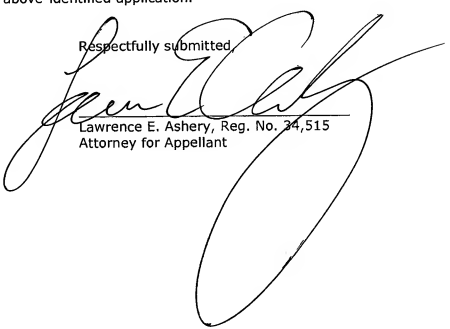
Appellant's claimed two-piece sealing plate and terminal configuration. This position is based on essentially the same arguments and conclusions that the Examiner advanced to support her position with respect to the Yoshinaka reference.

Appellant respectfully submits that the Examiner's arguments and conclusions with respect to the cap assembly 18 of the Han reference are flawed for the same reasons presented above with respect to the cap-shaped terminal plate 13 of Yoshinaka, and that the two-piece sealing plate and terminal configuration of Appellant's exemplary embodiment would not have been obvious to one having ordinary skill in the art from the one-piece sealing plate and terminal configuration of Han in view of the APA.

4. CONCLUSION

Appellant respectfully requests the Board's reversal of the rejections of the claims currently pending in the above-identified application.

Respectfully submitted,



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SDH/sdh/fp

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